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09/863,808	05/22/2001	Wen Lu	S-522,000	8928

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/863,808

Applicant(s)

SMELA ET AL.

Examiner

Thomas M. Dougherty

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 603.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Response to Arguments***

Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al. article entitled "DEPENDENCES OF ELECTRICAL AND MECHANICAL PROPERTIES OF CONDUCTING POLYPYRROLE FILMS ON CONDITIONS OF ELECTROCHEMICAL POLYMERIZATION IN AN AQUEOUS MEDIUM" which was provided by the Applicant in view of Kaneto et al. (US 5,556,700). Satoh et al. teach preparation of polypyrrole films under various polymerization conditions and have been able to increase the electrical conductivity to higher than 500 S/cm by selecting polymerization conditions.

Satoh et al. note using a high-conductivity conjugated polymer at line 3 in the first paragraph of the Introduction.

The high-conductivity conjugated polymer is prepared from a monomer selected from the group consisting of aniline, **pyrrole** (line 4 in first paragraph of Introduction), thiophene, phenylene vinylene, and derivatives thereof.

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Satoh et al. do not further describe operations of a specific actuator containing this material or its derivatives which expands linearly.

Kaneto et al. note (col. 1, lines 28-35) in their BACKGROUND OF THE INVENTION discussion of the prior art, an electrochemical actuator comprising a high-conductivity conjugated polymer wherein said element actuates by linear extension/contraction.

Kaneto et al. do not note how their high-conductivity polymer is prepared nor do they note its electrical conductivity range.

It would have been obvious to use the high-conductivity polymer of Satoh et al. in the device described in Kaneto et al. in order to achieve the high electrical and mechanical properties such an electrical conductivity material allows.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al. article entitled "DEPENDENCES OF ELECTRICAL AND MECHANICAL PROPERTIES OF CONDUCTING POLYPYRROLE FILMS ON CONDITIONS OF ELECTROCHEMICAL POLYMERIZATION IN AN AQUEOUS MEDIUM" which was provided by the Applicant in view of Kaneto et al. (US 5,556,700). Given the combined invention as noted above, said combination does not note specific derivatives that generate high-conductivity conjugated polymers when polymerized.

Kaneto et al. however in their DETAILED DESCRIPTION OF THE INVENTION at col. 2, ll. 57-64 use of derivatives including alkyl in an electrochemical device, which device flexes but does not apparently expand in a linear direction.

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It would have been obvious to one having ordinary skill in the art to employ the derivative noted by Kaneto et al. in their invention in the combined device noted above because these materials can be made into controllably deformable actuators as Kaneto et al. note at col. 1, lines 58-63.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited reads on some aspect or aspects of the claimed invention.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

*Sm*  
tmd

July 23, 2003

*Thomas M. Dougherty*  
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